

CLAIMS

1. A soil processing method comprising making a microwave radiator move into soil, and thereafter radiating microwaves from the microwave radiator to soil to be processed.
2. The soil processing method according to claim 1, wherein radiation of microwaves is performed while the microwave radiator moved into the soil is being maintained at rest.
3. The soil processing method according to claim 1, wherein radiation of microwaves is performed while the microwave radiator moved into the soil is being moved generally in a vertical direction.
4. The soil processing method according to claim 1, wherein radiation of microwaves is performed while the microwave radiator moved into the soil is being moved generally in a horizontal direction.
5. A soil sterilization method comprising radiating microwaves underground from a microwave radiator moving at a predetermined depth under the ground, whereby soil to be sterilized is sterilized along a locus of travel of the microwave radiator.
6. The soil sterilization method according to claim 5, wherein the direction of radiation of microwaves radiated

underground from the microwave radiator is substantially horizontally set, whereby soil to be sterilized is sterilized in a predetermined depth range.

7. The soil sterilization method according to claim 6, wherein the microwave radiator is made to travel underground two times or more along one travel locus at different depths, whereby a continuous mass of soil at a predetermined depth from the soil surface is sterilized with the travel of the microwave radiator.

8. The soil sterilization method according to claim 6 or 7, wherein a plurality of microwave radiators are placed at a suitable distance from each other in a direction perpendicular to the direction of travel, whereby soil to be sterilized is sterilized through a predetermined width along the soil surface with the travel of the microwave radiators.

9. The soil sterilization method according to claim 8, wherein an adjacent pair of microwave radiators in the plurality of microwave radiators are placed so that their radiation surfaces face each other, whereby superimposed electric fields of microwaves are formed between the pair of microwave generators.

10. The soil sterilization method according to any one of claims 5 to 9, wherein a fertilizer comprising a salt is mixed in the soil to be sterilized, before microwave radiation.

11. The soil sterilization method according to any one of claims 5 to 10, wherein sterilization is performed by increasing the temperature of soil to 60 degrees Celsius or higher by induction heating.

12. The soil sterilization method according to any one of claims 5 to 10, wherein the depth of soil to be increased in temperature corresponds to a depth range in which a root vegetable is planted.

13. A soil processing apparatus comprising a farm traveling unit having an underground traveling portion and an overground traveling portion, a microwave radiator incorporated in the underground traveling portion of the farm traveling unit, a microwave generation source held in the overground traveling portion of the farm traveling unit, and a waveguide connecting the microwave generation source held in the overground traveling portion and the microwave radiator held in the underground traveling portion.

14. The soil processing apparatus according to claim 13, wherein the farm traveling unit has a plurality of the underground traveling portions placed at a suitable distance

from each other in a direction perpendicular to the direction of travel, and the microwave radiator is incorporated in each underground traveling portion.

15. The soil processing apparatus according to claim 13 or 14, wherein a radiation center axis of the microwave radiator is directed in a substantially horizontal direction in a direction perpendicular to the direction of travel.

16. The soil processing apparatus according to claim 15, wherein the microwave transmitters respectively incorporated in an adjacent pair of the underground traveling portions face each other.

17. The soil processing apparatus according to any one of claims 13 to 16, further comprising a travel depth adjustment tool for adjusting the travel depth of the underground traveling portions.

18. The soil processing apparatus according to any one of claims 9 to 12, further comprising a shielding member for preventing microwaves transmitted from the microwave transmitters incorporated in the underground traveling portions from leaking overground.

19. The soil processing apparatus according to any one of claims 13 to 18, wherein the farm traveling unit is of a pulled type.

20. The soil processing apparatus according to any one of claims 13 to 18, wherein the farm traveling unit is of a self-propelled type.

21. A farming instrument applied to a soil processing method including making a microwave radiator move into soil, and thereafter radiating microwaves from the microwave radiator to the soil to be processed, the farming instrument comprising:

being formed as a structural body capable of being thrust into soil generally in a vertical direction;

a sharpened portion for thrusting provided on a fore end portion;

a microwave radiation port provided in a side surface of the fore end portion;

a microwave inlet provided in a rear end portion; and

a waveguide incorporated to guide microwaves from the microwave inlet to the microwave transmission port,

whereby the farming instrument can be thrust into a desired spot in a farm to radiate microwaves to soil at a predetermined depth.